Subject: MS Colloquium-11/3/05-Langer 212/A-157
From: Nancy Sanchez <sanchez@anl.gov>
Date: Thu, 27 Oct 2005 11:01:07 -0500
To: "msd@anl.gov" <msd@anl.gov>, Yuri Galperin <iouri.galperine@fys.uio.no>, Robert Shekhter <shekhter@fy.chalmers.se>, Veniamin Kozoub <ven.kozub@pop.ioffe.rssi.ru>, Leonid Gorelik <gorelik@fy.chalmers.se>

MATERIALS SCIENCE COLLOQUIUM

SPEAKER: Professor James Langer
University of California, Santa Barbara

TITLE: Dynamics of Large Deformations in Glassy Solids: Why Structural Engineers May Need New Ideas in Nonequilibrium Physics

DATE: Thursday, November 3, 2005

TIME: 11:00 a.m.

PLACE: Building 212, Room A157

HOST: Igor Aronson

Refreshments will be served at 10:45 a.m.

Abstract: There remain many remarkably fundamental, unsolved puzzles in theories of deformation and failure of solids. For example: What is the basicdifference between brittleness and ductility? How do simple solids such as metallic glasses remember --- and forget --- their histories of deformation? I will summarize some recent attempts to answer these questions, and will argue that useful progress requires exploration of new concepts in nonequilibrium statistical physics. In particular, I will describe the way in which an effective disorder temperature, not necessarily the same as the ordinary, ambient temperature, may be needed for understanding the behavior of deforming amorphous solids